UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,533	02/17/2004	Koshi Hatakeyama	1232-5286	2432

27123 7590 08/30/2006

MORGAN & FINNEGAN, L.L.P.
3 WORLD FINANCIAL CENTER
NEW YORK, NY 10281-2101

EXAMINER	
SEVER, ANDREW T	

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/781,533	HATAKEYAMA ET AL.	
	Examiner	Art Unit	
	Andrew T. Sever	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,5,8-12,14-18 and 22-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,8-12,14-18 and 22-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 2, 4, 5, 8-12, 14-18, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deter et al. (US 5,822,022) in view of Flint (US 6,351,324) and Baba et al. (US 6,626,542.)

(*With regards to applicant's claim 1:*)

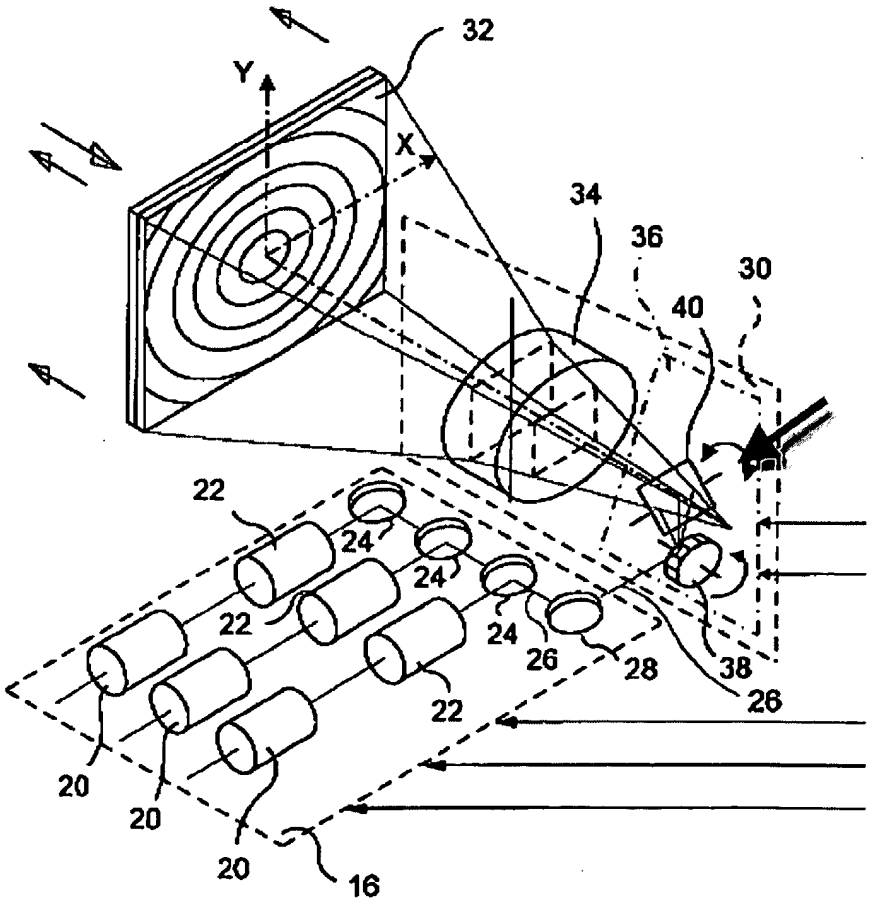
Deter teaches in figure 1 a scan type display optical system comprising:

A mirror (40)

A first rotation mechanism, which rotates the mirror (the axel see the Arrow in the below drawing which points towards the axel) to deflect and scan light with the mirror (40);

A projection optical system (34),

Wherein an incidence range of the deflected and scanned light to a first optical surface on which the deflected and scanned light is incident initially is variable by rotating the mirror through the rotation (this is how scanning optical systems inherently work, they scan an image across a optical surface by changing the incidence range; see columns 1 and 2 starting at line 55 of column 1.)



As shown above in the diagram Deter only literally teaches a first rotation mechanism (an axel), it does not literally teach a second rotation mechanism which supports and rotates the first rotation mechanism. However those of ordinary skill in the art at the time the invention was made would recognize that scanning mirrors are rotated by attached motors that rotate the axels that rotate the mirrors. See Flint which teaches in figure 2 a motor 254 which is a second rotation mechanism which supports and rotates a first rotation mechanism the (axel, roughly what 250 is pointed at), which then rotates the mirror 252. (See also column 11 lines 47-53 of Flint, which teaches that galvo mirrors such as Deter's are rotated bout an axis which is rotated by a motor 254.) Given that a motor/axel mechanism is the well known means for rotating galvo mirrors as demonstrated by Flint and given Deter's teaching of a galvo mirror which at least shows axis, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the motor of Flint in the scan type display optical system of Deter to provide a second rotation mechanism to support and rotate the first rotation mechanism which is literally shown by Deter as this is the well known and typical means for rotating a galvo mirror.

Deter teaches a refractive projection optical system rather then an at least partially reflective system. Baba et al. teaches such a system in figure 1, which includes first through third reflective optical surface (3, 4, and 5 respectively). Baba teaches in column 2 lines 35-52 that reflection type projection optical systems have the advantage over refractive system as taught by Deter in that they have less distortion and chromatic

aberration. They are also cheaper/easier to make. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a reflective projection optical system in the scan type display optical system of Deter as taught by Baba in which the plurality of optical surfaces making up the reflective projection optical system as taught by Baba would project the light deflected and scanned by the optical scanning device as taught by Deter as such a projection system (that taught by Baba) is cheaper/easier to make then that taught by Deter and results in less distortion and chromatic aberration.

With regards to applicant's claim 2:

This is how a scanning type display works, the light is scanned across the projection optical system which scans the image light across the projected upon surface.

With regards to applicant's claim 4:

As can be seen in figure 1 of Deter the rotating optical member which is the optical scanning member (40) as is claimed in applicant's claim 5, rotates the incidence light about an entrance pupil of the projection optical system (the entrance pupil is the square outline on the projection lens.)

With regards to applicant's claim 5:

See above with regards to applicant's claim 1.

With regards to applicant's claim 8:

Baba teaches curved surfaces making up the reflective surface.

With regards to applicant's claim 9:

See column 2 line 20-28 of Baba which teaches that the reflective surface have rotationally asymmetric aspheric shape (a free-form is not spherical so it is therefore aspherical.)

With regards to applicant's claim 10:

Deter teaches a second mirror (38) for deflecting the light in a direction orthogonal to the first direction.

With regards to applicant's claims 11 and 12:

See column 7 line 55 through column 8 line 28 of Deter. The modulators (22) are positioned prior to the scanning mirror (40), and therefore they guide modulated light to the mirror.

With regards to applicant's claim 14:

A controller is present (42 for example) for controlling the optical scanning device. As stated in column 7 lines 25-44 it receives image signals in a variety of formats and resolutions, which can include a change of projection range (wide screen versus standard for example).

With regards to applicant's claim 15:

See above (claim 1)

With regards to applicant's claim 16:

See above with regards to applicant's claims 11 and 12.

With regards to applicant's claim 17:

See above. Each line of the image is a two-dimensional image (it is at least a pixel wide) and as the scanning device scans the location of the currently displayed image is shifted.

With regards to applicant's claim 18:

See above with regards to applicant's claims 11 and 12.

With regards to applicant's claims 22-25:

Axel when rotated by the motor vibrates the mirror (vibration is defined as move or swing from side to side regularly, this is what a galvo-mirror such as Deter in view of Flint does (see definition 2 from the WordNet Dictionary attached hereto.)

Response to Arguments

4. Applicant's arguments filed 6/22/2006 have been fully considered but they are not persuasive.

Applicant argues that neither Deter nor Flint teaches both a first rotation mechanism and a second rotation mechanism. Applicant appears to believe that the claim language requires that a single mirror be rotated along two different axis. This is not what the claim language requires, rather the language requires that a first mechanism is rotated by a second mechanism which is a description of a motor and axel system as is described in the above rejection. Further given claim 10 it is not clear why applicant would need a second mirror to rotate in a second direction orthogonal to the first direction if the first mirror rotated in two directions. Accordingly the office takes the position that applicant's claim language only requires that the mirror rotate about one axis. Accordingly applicant's argument's are not found persuasive, and the rejection with regards to Deter in view of Flint have been repeated with only minor re-writing to clarify the rejection and accordingly made final.

Applicant argues that Deter does not project onto multiple screens. Applicant's claims do not include any limitations requiring it to project onto multiple screens, rather they require multiple optical surfaces which are part of the projection optical system, not part of the surface(s) to be projected upon. Accordingly these argument's are moot and not persuasive.

Applicant did not argue the dependent claims.

The 35 U.S.C. § 103 rejection based on Deter in view of Flint and Baba has been repeated with modifications for greater clarity and to reflect applicant's amended language and it has been made final.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 2002/0191161 is the Prior publication of Baba et al. and has an earlier publication date that is more then 1 year prior to applicant's filling date.

US 2003/0067590 to Shin teaches in figure 4 a mirror 30, which is used to scan in multiple axis.

US 6,819,468 to Dho teaches in figure 4 scanning across two screens.

US 6,755,536 to Tegreene et al. teaches in figure e7 a projector using a mirror 104 for scanning in multiple axis.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WB Perkey

AS

William Perkey
Primary Examiner